

Applicant: Donald L. Schilling
Application No.: 10/071,728

IN THE CLAIMS

1. (Currently Amended) A spread spectrum communication system comprising:

means for producing a reference signal;

means for producing a plurality of message signals, each message signal having message data;

means for combining the reference signal and the plurality of message signals as a combined signal;

means for transmitting the combined signal as a combined spread spectrum signal;

means for receiving a combined spread spectrum signal;

means for generating a local reference signal at a second unit;

means to synchronize the local reference signal with a detected reference signal at the second unit;

means, including a plurality of detector means and synchronization means,
for detecting the reference signal within the received combined spread spectrum signal;

means to synchronize the local reference signal with the detected reference signal; and

Applicant: Donald L. Schilling
Application No.: 10/071,728

means for recovering the message data of the plurality of message signals using information from the detected reference signal, said means demodulating each of the plurality of message signals.

2. (Previously Presented) The system of claim 1 further comprising:

means for recovering a carrier signal from the combined spread spectrum signal using the detected reference signal; and

wherein the message data recovering means uses the recovered carrier signal to recover the message data.

3. (Previously Presented) The system of claim 1 wherein the combined spread spectrum signal is in a code division multiple access format.

4. (Previously Presented) The system of claim 1 wherein a base station transmits the combined spread spectrum signal and a mobile station receives the combined spread spectrum signal.

5. (Currently Amended) A method for use in a spread spectrum communication system, the method comprising:

producing a reference signal;

Applicant: Donald L. Schilling
Application No.: 10/071,728

producing a plurality of message signals, each message signal having message data;

combining the reference signal and the plurality of message signals as a combined signal;

transmitting the combined signal as a combined spread spectrum signal;

receiving a combined spread spectrum signal;

generating a local reference signal at a second unit;

synchronize the local reference signal with a detected reference signal at the second unit;

detecting using a plurality of detector means and synchronization means to detect the reference signal within the received combined spread spectrum signal;

synchronizing the local reference signal with the detected reference signal;
and

recovering the message data of the plurality of message signals using information from the detected reference signal, thereby demodulating each of the plurality of message signals.

6. (Previously Presented) The method of claim 5 wherein the combined spread spectrum signal is in a code division multiple access format.

Applicant: Donald L. Schilling
Application No.: 10/071,728

7. (Previously Presented) The method of claim 5 wherein a base station transmits the combined spread spectrum signal and a mobile station receives the combined spread spectrum signal.

8. (Previously Presented) The method of claim 5 further comprising:
recovering a carrier signal from the combined spread spectrum signal using the detected reference signal; and

wherein the message data recovering means uses the recovered carrier signal to recover the message data.

9. (New) The communication system of claim 1, wherein:
the means for generating the remote reference signal at the second unit relays the detected reference signal, the remote reference signal transmitted from the second unit;

the second unit spread-spectrum processes message data with the local reference signal, and combines the spread-spectrum-processed message data with the local reference signal as a CDMA signal; and

the second unit transmits said CDMA signal over a communications channel to a base station.

Applicant: Donald L. Schilling
Application No.: 10/071,728

10. (New) The communication system of claim 1, wherein:

the means for generating the local reference signal at the second unit uses the detected reference signal to set the timing for the local reference signal, the local reference signal transmitted from the second unit;

the second unit spread-spectrum processes the message data with the local reference signal, and combines the spread-spectrum-processed message data with the local reference signal as a CDMA signal; and

the second unit transmits said CDMA signal over a communications channel to a base station.

11. (New) The method of claim 5, further comprising:

using the generation of the local reference signal at the second unit to relay the detected reference signal, and transmitting the local reference signal from the second unit;

processing the remote message data with the remote reference signal, and combining the spread-spectrum-processed remote message data with the remote-reference signal as a remote-CDMA signal; and

transmitting the remote-CDMA signal over a communications channel.

Applicant: Donald L. Schilling
Application No.: 10/071,728

12. (New) The method of claim 5, further comprising:
generating the local reference signal at the second unit using the detected
reference signal to set the timing for the local reference signal;
processing the remote message data with the local reference signal, and
combines the spread-spectrum-processed remote message data with the local
reference signal as a CDMA signal; and
transmitting the CDMA signal over a communications channel.